

308/NF/03

**We claim:**

1. A process for the preparation of micron/nano sized inorganic particles (2 nm to 5  $\mu\text{m}$ ) using aqueous foams which comprises mixing an aqueous solution of a base inorganic salt or a mixture of at least two base inorganic salts with a foaming surfactant oppositely charged to the base inorganic salt, aerating the mixture to form a column of foam, reducing the inorganic salt particles in the column of foam by spraying or by exposing the foam column to to a reducing agent/atmosphere to obtain nanoparticles of the corresponding inorganic material of the base inorganic salt, allowing the foam column to settle with the gradual collapsing of the foam and collecting the nanoparticles by spraying distilled water over the column of foam and drying the nanoparticles so obtained.
2. A process as claimed in claim 1 wherein the base inorganic salts are selected from the group consisting of salts of calcium, barium, strontium, chromium, yttrium, aluminium, lithium, iron, antimony, boron, cadmium, cesium, silver, mercury, cobalt, sodium, thorium, tin, indium, tungsten, vanadium, manganese, copper, lead and any mixtures thereof.
3. A process as claimed in claim 1 wherein the base inorganic salts are selected from the group consisting of chloraurate, chloroplatinate, tetrachloronickelate, chloropalladate, hexafluorotitanate, hexafluoro zirconate, phosphotungstate, phosphomolybdate, silicotungstate and any mixtures thereof.
4. A process as claimed in claim 1 wherein the foaming surfactant is selected from the group consisting of aqueous foams of anionic, cationic, non-ionic surfactant and any mixtures thereof.
5. A process as claimed in claim 4 wherein the foaming surfactant is selected from the group consisting of sodium alkyl sulfates, sodium bis-2-ethyl-hexyl sulfosuccinate, alkyl triethylammonium bromides, alkyl polyoxyethylene monoethers, casein proteins, and any mixtures thereof.
6. A process as claimed in claim 1 wherein the foam comprises a material with porosity between about 60% and 99%.
7. A process as claimed in claim 1 wherein the micron/nano sized particles obtained are substantially uniform in shape and range in size from several nanometres to one micron in diameter.
8. A process as claimed in claim 1 wherein the size of the particles obtained is in the range of 2 nm to 5  $\mu\text{m}$ .